

### Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1. (previously presented) A mixture of isomers of dodecanethiol prepared by a process of reacting hydrogen sulfide with a trimer consisting essentially of n-butene in the presence of a catalyst, said mixture of isomers exhibiting a diagram of distillation temperatures, at 19 millibar, such that point 50 is  $123^{\circ}\text{C} \pm 1^{\circ}\text{C}$  and that the difference in temperature between point 20 and point 80 is less than or equal to  $4^{\circ}\text{C}$ .
2. (previously presented) The mixture as claimed in claim 1, characterized in that the catalyst is chosen from an acid compound, a metal oxide or a combination thereof.
3. (previously presented) The mixture as claimed in claim 1, characterized in that the catalyst is a cation-exchange resin.
4. (previously presented) The mixture as claimed in claim 1, characterized in that the catalyst is a copolymer of sulfonated styrene with divinylbenzene.
5. (previously presented) The mixture as claimed in claim 1, characterized in that the molar ratio of the hydrogen sulfide to the trimer of n-butene is between 1 and 100.
6. (previously presented) The mixture as claimed in claim 1, characterized in that the molar ratio of the hydrogen sulfide to the trimer of n-butene is between 1 and 5.
7. (previously presented) The mixture as claimed in claim 1, characterized in that the process is carried out at a temperature of between 10 and  $250^{\circ}\text{C}$  and at a pressure of between 5 and 80 bar.
8. (previously presented) The mixture as claimed in claim 1, characterized in that the process is carried out at a temperature of between 50 and  $150^{\circ}\text{C}$  and at a pressure of between 10 and 50 bar.

9. (previously presented) The mixture as claimed in claim 1, characterized in that the process is carried out at a temperature of between 70 and 120°C and at a pressure of between 10 and 20 bar.
10. (previously presented) A process for the preparation of the mixture of claim 1, characterized in that it comprises the reaction of hydrogen sulfide with tri(n-butene) in the presence of an acid catalyst.
11. (previously presented) A process for radical (co)polymerization, characterized in that it is carried out in the presence of the mixture as claimed in claim 1 used as chain-transfer agent.
12. (previously presented) A process for the synthesis of di(tert-dodecyl) polysulfides, characterized in that it is carried out by reaction of the mixture as claimed in claim 1 with sulfur in the presence of a basic catalyst.
13. (previously presented) The mixture as claimed in claim 1, characterized in that the molar ratio of the hydrogen sulfide to the trimer of n-butene is between 1 and 20.
14. (previously presented) A process for preparing a mixture of isomers of dodecanethiol comprising reacting hydrogen sulfide with a trimer consisting essentially of n-butene in the presence of a catalyst, said mixture of isomers exhibiting a diagram of distillation temperatures, at 19 millibar, such that point 50 is  $123^{\circ}\text{C} \pm 1^{\circ}\text{C}$  and that the difference in temperature between point 20 and point 80 is less than or equal to  $4^{\circ}\text{C}$ .
15. (canceled)
16. (previously presented) The process as claimed in claim 14, characterized in that the catalyst is chosen from an acid compound, a metal oxide or a combination thereof.
17. (previously presented) The process as claimed in claim 14, characterized in that the catalyst is a cation-exchange resin.

18. (previously presented) The process as claimed in claim 14, characterized in that the catalyst is a copolymer of sulfonated styrene with divinylbenzene.
19. (previously presented) The process as claimed in claim 14, characterized in that the molar ratio of the hydrogen sulfide to the olefin is between 1 and 100.
20. (previously presented) The process as claimed in claim 14, characterized in that the process is carried out at a temperature of between 10 and 250°C and at a pressure of between 5 and 80 bar.